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Reseñas de libros

Tarde venientibus ossa – For latecomers, the bones

Neotropical Zooarchaeology and Taphonomy, edited by A. Sebastián Muñoz and Mariana Mondini. Quaternary International, Volume 180, Issue 1, March 2008, pp. 1-158. ISSN 1040-6182.

Reseña de *László Bartosiewicz*. Institute of Archaeological Sciences. Loránd Eötvös University, Múzeum Krt. 4/B. 1088 Budapest, Hungary. E-mail: bartwicz@yahoo.com

Archaeological excavators are latecomers by vocation, and given good preservation, much of the finds are animal bones. Taphonomy, the critical evaluation of bioarchaeological information in archaeology through understanding site formation processes, has become one of their chief tools in dealing with bone remains. A concept introduced in paleontology (Efremov 1940), taphonomy has not only become the indispensable first step in archaeozoological inquiry, but also the best common denominator linking various studies of human-animal relationships across chronological periods and continents. This aspect of taphonomy is especially important in presenting geographically diverse areas with a rich and varied archaeological heritage such as the Neotropical region that includes what is historically known as Latin America and the southern United States around the Gulf of México. Immense latitudinal and altitudinal variability of habitats has made taphonomy the *lingua franca* between archaeozoologists - sometimes even within geographically varied countries such as Argentina (Gutiérrez *et al.* 2007).

This volume is a clearly structured collection of papers submitted to the session entitled "Neotropical Zooarchaeology and Taphonomy" organized by the volume editors at the 10th International Conference of the International Council for Archaeozoology in México D.F. in 2006. While the session abstract promised to highlight "specific research problems in the region from ecological, evolutionary, and biogeographic points of view" (Polaco *et al.* 2006: 11), this volume is also a collection of scholarly papers that represent broader, general trends in human-animal interactions in the Neotropical region throughout the late Quaternary.

The introductory paper by A. Sebastián Muñoz and Mariana Mondini, offers a clear definition of the region extending on either side of the Equator with the Pacific to the west and the Caribbean/Atlantic to the east. They point out that south of the isthmus of Panama, South America has a triangular shape narrowing toward the south. This geometry coincides with simpler ecological and structural systems and the increasing climatic influence of oceans southwards. The Andes, meanwhile, stop westerly winds sweeping across the continent and much of the precipitation is lost on its western slopes. At the same time, the availability of land decreases on the narrowing landmass. This geographical setup offers outstanding biodiversity and excellent preservation in some areas while taphonomic challenges dominate in others. These contribute to the immense variety of zooarchaeological topics available for investigation.

This rich geographical and archaeological landscape is depicted in further anthropological detail by Peter W. Stahl, keynote speaker of the session, who offers a thought provoking review of zooarchaeology in the neotropics in terms of historical ecology. Placing this paper at the beginning introduces important culture historical and ethical points for outsiders, especially researchers from densely inhabited, industrialized Europe. Even if we are aware of the pitfalls of ethnographic analogy, the reminder that "'traditional small-scale societies' [in the Neotropical region] occupy marginalized environments because of historical circumstances... Not only do they possess a history,... but they may be inappropriate analogs for constructing inferences about peoples of the past" sets the tone for reading the rest of the volume. Functional similarities between riparian habitats in Amazonia and the prehistoric taskscapes in the marshy Great Hungarian Plain could be explored only on an abstract, theoretical level (Whittle 2007: 743-744).

The peopling of the Americas offers a powerful research paradigm for archaeologists working in this region. Adauto Araujo *et al.* interpret palaeoparasitological evidence in light of the latitudinal climatic variability from east to west along the continent. The authors conclude that some prehistoric

thermophilic parasites must have been introduced by human hosts along migration routes alternative to the Bering region. Another scientific problem of this early period, the extinction of Pleistocene megafauna, is addressed in the study by Alejandro García *et al.* who studied the dietary composition of *Hippidion* at two sites in Argentina. Both studies rely on non-osteological, laboratory methods for the recovery of biological evidence.

The authors of the next set of papers review natural taphonomic factors (some of them in the form of actualistic studies), something that has been standard practice in paleontology. The importance of such research to archaeozoology is that by excluding anthropogenic effects, the natural elements in the process become recognizable and may later be identified in more complex, cultural deposits. The differential preservation of bird and mammal bones was studied by Isabel Cruz in southern Patagonia. Her analysis of rich natural deposits formed under extreme climatic circumstances helps make clear fundamental differences in preservation between the two vertebrate classes, which are frequently distorted by human decision-making (prey selection, carcass processing, etc.) in archaeological assemblages (Bartosiewicz and Gál 2007). The detailed survey of natural mass-mortality processes in guanaco herds caused by winter stress in Southern Patagonia, analyzed by Juan Bautista Belardi and Diego Rindel, is reminiscent of the classical work by Weigelt (1927), who long before the explicit definition of taphonomy recognized the research potential of documenting contemporary mass deaths of animals as part of paleontological inquiry. These authors attempt to establish forensic criteria for the identification of mass mortality in archaeological deposits. Mariana Mondini and A. Sebastián Muñoz contributed a review of bone damage inflicted by pumas. Variability in puma taphonomic action needs to be understood within the context of the local fauna in areas that are as diverse as the neotropical region. Actualistic studies on large felids as taphonomic agents, thus, have implications for the interpretation of the composition of archaeofaunal assemblages.

Recognizing the effects of action by non-human predators is fundamental in appraising early prehistoric human subsistence patterns focusing on the largest prey with the best yield in areas characterized by low faunal diversity such as northwestern Patagonia where Pablo Marcelo Fernández studied faunal exploitation during the last 3500 calibrated years. These archaeological

bone assemblages originated from sites representing low energy environments in the Sub-Antarctic forest zone and the extra-Andean Patagonian steppe region. Large vertebrates revealed fat-oriented carcass processing. Guanaco bones associated both with ceramic and aceramic technologies displayed no change in carcass processing. Similarities in the evidence of bone fat extraction suggest boiling prior to the introduction of pottery.

Taphonomic analysis was used as a key to the interpretation of Brazilian archaeofaunas by Albérico Nogueira De Queiroz and Olivia Alexandre De Carvalho. Their study encompasses vast geographical distances and a time interval ranging between ca. 9400–2600 BP. They have shown that modification by non-human predators on microvertebrates was more significant in Amazonian sites and in the south. Evidence of humans exploiting small animals, however, was obvious in archaeological sites from the northeast of Brazil, where animal bones were abundant in hearths and also show marks of butchering.

The emphasis in the following cluster of papers is placed on the exploitation of aquatic resources. The Neotropical region includes the possibly narrowest filter in the migration of terrestrial organisms: the isthmus of Panamá, linking the landmass of North to South America. On the other hand, until the 1914 opening of the Panama Canal, this narrow strip of land isolated two oceans representing radically different aquatic environments –a major attraction during the first ever ICAZ meeting in Latin America, that of the Fish Remains Working Group, held in Panamá in 1997. Taphonomy at two coastal rock shelters in Parita Bay on the Pacific side was studied by Diana Rocío Carvajal-Contreras *et al.* with a special focus on fishing and fish curing as well as coast-inland transport of the processed product. However, the composition of the fish bone assemblages was also interpreted within the broader context of marine transgression (ca. 7000 BP) and coastal progradation (after ca. 4000 BP). Preliminary taphonomic analyses suggest that the studied sites were used for curing fish between 2200 and 1900 BP. At that time, geomorphological conditions favored such activities making them profitable in a wider, probably chiefdom-scale, economic system. In the next paper, Pedro Volkmer de Castilho reviews evidence for the utilization of cetaceans in shell mounds from the southern coast of Brazil. It is worth mentioning that partly due to excellent preservation created by their calcareous matrix, shell middens played a key role

in the emergence of zooarchaeology in both the Old and New Worlds (Forchhammer *et al.* 1851-1856; Wyman 1868). The author of this paper analyzed cetacean remains from at least nine species found at six shell mound sites along the Atlantic coast in Santa Catarina State, estimated to date from 5020 to 2670 BP. The results suggest that there was sporadic exploitation of scavenged carcasses (mainly whales) and capture of smaller odontocetes, probably using fish nets. In addition, information on anthropogenic taphonomic effects such as butchery as well as palaeopathology are discussed. In addition to marine fauna, studies of fresh water fishing in this volume are represented by the analysis of fish remains from the Bolivian shore of Lake Titicaca by José M. Capriles *et al.* Following the rigorous evaluation of sampling, a many-sided taphonomic evaluation is provided that shows reduction in the importance of aquatic resources throughout the Formative Period (1000 BC-AD 400). While standardization in fish exploitation and processing characterize the Middle Formative, by the Late Formative, there was a clear reduction in the importance of fish in the diet as the intensification domesticate exploitation continued. This trend is evaluated within the context of the interface between environmental change and socioeconomic complexity in the Lake Titicaca Basin.

This latter paper leads the reader to animal husbandry in the high Andes, a topic that is continued by Silvana A. Rosenfeld in a way that is unusual for many working outside the region: the exploitation of guinea pigs. (My personal experience with the topic is that when I made an inquiry on the ZooArch mailing list in relation to cut-marks on a hamster find from Hungary, I was inundated by dozens of helpful e-mails from Latin America; Bartosiewicz 2003). In her paper, Rosenfeld proposes that prolific guinea pigs were crucial in the diet at the site of Conchopata in the Peruvian Andes around AD 600-1000 because they represented an additional, easily renewable source of fat *i.e.* calories, especially during the wet season at this settlement located at 2760 m asl. The result is an exemplary study of seasonality and its implications on the consumption of fat in the pre-Columbian Andean diet. Looking at another, more contested case of domestic animal exploitation, Andrés D. Izeta reviews the relationship between humans and camelids. These connections have changed from extractive techniques at the end of the Pleistocene to production of domesticated camelids in herds. The author studies the

latter using assemblages from two different eco-zones in Northwestern Argentina. Signs of Late Holocene camelid exploitation differed during the three observed periods. The earliest period is characterized by the use of llama, guanaco and vicuña in both zones with a dominance of adult remains. Lower biodiversity is evident during the second period with more species variability in the *puna* and in some lower valleys. The Late period is characterized by the presence of adult camelids in the *puna*, while subadults become preponderant in other localities and valley assemblages do not reveal major changes during the three periods in camelid demography or taxonomic diversity. This difference allowed the reconstruction of two models of camelid use in the studied region.

In the final research paper in the volume, Eduardo Corona-M. reviews the exploitation of vertebrates in Xochicalco, an important Mesoamerican urban, ceremonial and military center between AD 700-900. The site is located in the transition zone between the Nearctic and Neotropic zoogeographical regions in México. This borderland location is reflected in the mixed zooarchaeological assemblage. Social hierarchy, another source of species variability at this complex site was also taken into consideration in a multivariate analyses that directed attention to a few species coming from the Neotropical area (*e.g.*, pecarí, jaguar and American crocodile), that seem to have been used by elites as social markers in distinguished locations. Thus, species composition at individual loci on the site offers a unique glimpse at the interaction between zoogeographic affinity and social hierarchy.

Finally, the archaeology of the Neotropics is briefly summarized by Luis Alberto Borrero who acted as discussant at the end of this rich conference session. Representing a apparently environmental archaeological perspective he asserts that there is a role for archaeology in the Neotropical region in tracing how species and landscapes that interact with humans change. Moreover these processes all include a taphonomic component. He offers an insider's view of the individual papers in their original, Latin-American context rather than with reference to Old World developments as I have here.

Comparing these two views historically explains why this volume is of particular importance. As mentioned above, archaeozoology emerged and became strong with research on shell middens in both the Old and New Worlds at the end of the 19th century. The influence of immigrant European

scholars such as Robert Lehman-Nitsche, a naturalist, physician and ethnographer from Germany, was instrumental in linking research between these two far-flung regions (Bilbao 2004). Relations between megafaunal extinctions and the appearance of the first humans in South America also greatly inspired zooarchaeological research (e.g., Lehman-Nitsche 1899). Archaeological interpretations of animal remains also included a study of osseous industries that was cutting-edge for its time (e.g., Lehman-Nitsche 1904). A post-World War II renaissance in archaeozoological studies in Central Europe became synergetic with New Archaeology in the anglophone world by the late 1960s, and stimulated faunal research in both North and South America through integrating personalities such as Wheeler Pires-Ferreira and Kaulicke 1976. This trend was probably not independent of the vested interest of processual archaeologists in understanding subsistence and the emergence of food production in the Near East that increased the world-wide importance of zooarchaeology (Bartosiewicz and Choyke 2002). External influences evolved in quiet symbiosis with local work in various countries in the Neotropical region and resulted in strong communities of zooarchaeologists whose international impact has increased significantly outside the continent over the last decades. As is clearly demonstrated by the papers in this volume, the diverse Neotropical region has offered research opportunities for everyone. Natural science oriented, taphonomic research became very strong in Patagonia, while Mesoamerica has developed into the scene of zooarchaeological research in connection with important projects on the archaeology of complex societies. Studying similar state formations as well as European colonial influences in the Andes and surrounding Andean regions were integrated within the Camelid Working Group (*Grupo Zooarqueología de Camélidos*), established in 1993. The group has been active within ICAZ since 1995.

Zooarchaeology, a narrow discipline, is particularly dependent on global communication. Exposure of the excellent work by specialists in Latin America has indubitably benefited from an increasing number of publications in English. In 2004, a remarkable collection of 12 papers on zooarchaeology in South America, was edited by Guillermo Mengoni Goñalons. In the introduction to that volume, he pointed out that many contributors already belonged to the "second generation of zooarchaeologists" (Mengoni Goñalons 2004: 5). Less than five years later, it is especially welcome that *Quaternary International*, the official journal of the International Union for Quaternary

Research (INQUA), dedicated its March 2008 issue to a session of the 2006 ICAZ conference offering a complementary review. It is to the credit of the editors (both of the special issue and the journal itself) that they managed to kill two birds with one *bola*: maintain the integrity of the symposium and guarantee the properly accredited quality of contributions.

This informative volume marks yet another high point in an important trend: the First Latin American Zooarchaeology meeting that will take place during the 13th Anthropological Congress in Bogotá, Colombia in October 2009.

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Reseña de *Gustavo Martínez*. CONICET, INCUAPA. Facultad de Ciencias Sociales (UNCPBA). Avda. del Valle 5737, B7400JWI, Olavarría, Buenos Aires, Argentina. E-mail: gmartine@soc.unicen.edu.ar

Recientemente se ha ejemplificado y discutido con casos de estudio concretos si los enfoques tafonómicos desarrollados en el marco de programas de investigación arqueológicos ofrecen una voz más a la hora de las interpretaciones arqueológicas o si ejercen una suerte de tiranía que tira por tierra todo aquello que hemos defendido como producto de la conducta humana (Gutiérrez 2009).

Dentro de este planteo, me interesa resaltar de donde surge el problema o la elección del tema de estudio llevado a cabo por Fabiana Martín: de un proyecto arqueológico con una fuerte preocupación por entender la tafonomía en varios de sus aspectos. La premisa, en este caso, es entender el uso de los cuerpos humanos por carroñeros como recursos alimenticios y sus con-

secuencias tafonómicas. A la aplicación de metodologías propias de estudios contemporáneos y fósiles de casos arqueológicos la autora suma los resultados de las investigaciones desarrolladas en el campo de la Tafonomía Forense, introduciendo así variables de estudio que complejizan las historias tafonómicas de los restos humanos. En este sentido, la introducción de la Tafonomía Forense al campo de aplicación arqueológica, en tanto marco de referencia, es una innovación metodológica importante que implicó sumergirse en la teoría y metodología de los análisis forenses para derivar expectativas de modificaciones causadas por carroñeros sobre huesos humanos, tanto en contextos naturales como arqueológicos. Sin duda, esta no es una tarea menor, ya que obligó a la autora a considerar y trabajar fuertemente en la adecuación de resultados y escalas de aplicación al registro arqueológico a través de la búsqueda de análogos modernos derivados de la Tafonomía Forense (e.g., enfoques tafonómicos experimentales y naturalistas). En esta adecuación escalar, el tiempo, la resolución e integridad resultaron variables importantes cuando se consideran los objetivos forenses y los arqueológicos. El foco principal de la Tafonomía Forense es dilucidar las causas de muerte en contextos actuales en tanto que, desde una perspectiva arqueológica, uno de los intereses principales es tratar con la contemporaneidad de los huesos que componen un entierro o un depósito arqueológico y registrar los grados y modos de destrucción de las unidades óseas involucradas. La discusión y análisis por parte de la autora del denominado Locus E3, en la localidad Tres Arroyos, es un caso paradigmático de esta tarea: aquello que originalmente había sido considerado como un entierro secundario fue reinterpretado como un depósito causado por la acumulación de huesos pertenecientes a un cuerpo que se desplazó naturalmente hacia una trampa natural. En este caso, los elementos óseos presentan numerosas marcas de carnívoros producidas antes de su deposición final. Como menciona la autora, los tafónomos forenses se concentran en la acción de carnívoros que "modifican la escena del crimen", en un tiempo inmediato. Sin embargo, como arqueólogos también estamos interesados en ver cómo los carnívoros enmascaran otras marcas o alteraciones en restos óseos humanos que se producen en instancias *antemorten*, *perimorten* y *postmorten*. En otras palabras, desde una perspectiva tafonómica, los arqueólogos nos interesamos más en la destrucción y dispersión de las unidades, que en las causas de muerte de los individuos. Así, el lector encontrará en este libro cómo se entrelazan coherentemente análisis tafonómicos de restos óseos humanos